

Claims

- [c1] 1. A slot armor component for use in a rotor of a dynamo-electric machine, the slot armor component comprising a profile extruded material having a first leg portion and a second leg portion disposed at an angle to the first leg portion, the second leg portion being shorter and thicker than the first leg portion.
- [c2] 2. A slot armor component as in claim 1, wherein the material is glass-filled polyetheretherketone (PEEK).
- [c3] 3. A slot armor component as in claim 2, wherein the material is less than or equal to 30% glass-filled polyetheretherketone (PEEK).
- [c4] 4. A slot armor component as in claim 1, wherein the material is unfilled polyetheretherketone (PEEK).
- [c5] 5. A slot armor component as in claim 1, wherein the material is glass-filled Ultem.
- [c6] 6. A slot armor component as in claim 5, wherein the material is less than or equal to 30% glass-filled Ultem.
- [c7] 7. A slot armor component as in claim 1, wherein the material is unfilled Ultem.
- [c8] 8. A slot armor component as in claim 1, wherein the second

leg portion includes (i) a connection portion integrally connected to the first leg portion, and (ii) a tip portion integrally connected to the connection portion, the tip portion having a width which tapers as the tip portion extends away from the connection portion.

[c9] 9. A slot armor component as in claim 1, wherein the second leg portion includes (i) a first surface which extends perpendicularly to the first leg portion, and (ii) a second surface, opposite to the first surface, which extends at an angle less than perpendicular to the first leg portion.

[c10] 10. A slot armor component as in claim 1, wherein the second leg portion includes an internal skeleton structure.

[c11] 11. A slot armor component as in claim 1, wherein the second leg portion is completely filled by the profile extruded material.

[c12] 12. A slot armor component as in claim 10, wherein the internal skeleton structure defines at least one hollow volume within the second leg portion.

[c13] 13. A method of forming a slot armor component for use in a rotor, the method comprising:
producing a material utilizing a profile extruded process; and
shaping the profile extruded material into a first leg portion and a second leg portion disposed at an angle to the first leg portion, the second leg portion being shorter and thicker than

the first leg portion.

- [c14] 14. A method as in claim 13, wherein the material is glass-filled polyetheretherketone (PEEK).
- [c15] 15. A method as in claim 14, wherein the material is less than or equal to 30% glass-filled polyetheretherketone (PEEK).
- [c16] 16. A method as in claim 13, wherein the material is unfilled polyetheretherketone (PEEK).
- [c17] 17. A method as in claim 13, wherein the material is glass-filled Ultem.
- [c18] 18. A method as in claim 17, wherein the material is less than or equal to 30% glass-filled Ultem.
- [c19] 19. A method as in claim 13, wherein the material is unfilled Ultem.
- [c20] 20. A method as in claim 13, wherein the second leg portion includes (i) a connection portion integrally connected to the first leg portion, and (ii) a tip portion integrally connected to the connection portion, the tip portion having a width which tapers as the tip portion extends away from the connection portion.
- [c21] 21. A method as in claim 13, wherein the second leg portion includes (i) a first surface which extends perpendicularly to the first leg portion, and (ii) a second surface, opposite to the first surface, which extends at an angle less than perpendicular to

the first leg portion.

- [c22] 22. A method as in claim 13, wherein the second leg portion includes an internal skeleton structure.
- [c23] 23. A method as in claim 13, wherein the second leg portion is completely filled by the profile extruded material.
- [c24] 24. A method as in claim 22, wherein the internal skeleton structure defines at least one hollow volume within the second leg portion.
- [c25] 25. A slot armor material for use in a rotor of a dynamo-electric machine comprising glass-filled polyetheretherketone (PEEK).
- [c26] 26. A slot armor material as in claim 25, wherein the glass-filled polyetheretherketone (PEEK) is less than or equal to 30% glass-filled polyetheretherketone (PEEK).
- [c27] 27. A slot armor material as in claim 25, wherein the material is a profile extruded material.
- [c28] 28. A slot armor material as in claim 27, wherein the profile extruded material includes a first leg portion and a second leg portion disposed at an angle to the first leg portion, the second leg portion being shorter and thicker than the first leg portion.
- [c29] 29. A slot armor material as in claim 28, wherein the second leg portion includes (i) a connection portion integrally connected to the first leg portion, and (ii) a tip portion integrally

connected to the connection portion, the tip portion having a width which tapers as the tip portion extends away from the connection portion.

- [c30] 30. A slot armor material as in claim 28, wherein the second leg portion includes (i) a first surface which extends perpendicularly to the first leg portion, and (ii) a second surface, opposite to the first surface, which extends at an angle less than perpendicular to the first leg portion.
- [c31] 31. A slot armor material as in claim 28, wherein the second leg portion includes an internal skeleton structure.
- [c32] 32. A slot armor material for use in a rotor of a dynamo-electric machine comprising an unfilled polyetheretherketone (PEEK).
- [c33] 33. A slot armor material as in claim 32, wherein the material is a profile extruded material.
- [c34] 34. A slot armor material as in claim 33, wherein the profile extruded material includes a first leg portion and a second leg portion disposed at an angle to the first leg portion, the second leg portion being shorter and thicker than the first leg portion.
- [c35] 35. A slot armor material as in claim 34, wherein the second leg portion includes (i) a connection portion integrally connected to the first leg portion, and (ii) a tip portion integrally connected to the connection portion, the tip portion having a

width which tapers as the tip portion extends away from the connection portion.

- [c36] 36. A slot armor material as in claim 34, wherein the second leg portion includes (i) a first surface which extends perpendicularly to the first leg portion, and (ii) a second surface, opposite to the first surface, which extends at an angle less than perpendicular to the first leg portion.
- [c37] 37. A slot armor material as in claim 34, wherein the second leg portion includes an internal skeleton structure.
- [c38] 38. A slot armor material for use in a rotor of a dynamo-electric machine comprising glass-filled Ultem.
- [c39] 39. A slot armor material as in claim 38 wherein the glass-filled Ultem is less than or equal to 30% glass-filled Ultem.
- [c40] 40. A slot armor material as in claim 38, wherein the material is a profile extruded material.
- [c41] 41. A slot armor material as in claim 40, wherein the profile extruded material includes a first leg portion and a second leg portion disposed at an angle to the first leg portion, the second leg portion being shorter and thicker than the first leg portion.
- [c42] 42. A slot armor material as in claim 41, wherein the second leg portion includes (i) a connection portion integrally connected to the first leg portion, and (ii) a tip portion integrally

connected to the connection portion, the tip portion having a width which tapers as the tip portion extends away from the connection portion.

- [c43] 43. A slot armor material as in claim 41, wherein the second leg portion includes (i) a first surface which extends perpendicularly to the first leg portion, and (ii) a second surface, opposite to the first surface, which extends at an angle less than perpendicular to the first leg portion.
- [c44] 44. A slot armor material as in claim 41, wherein the second leg portion includes an internal skeleton structure.
- [c45] 45. A slot armor material for use in a rotor of a dynamo-electric machine comprising an unfilled Ultem.
- [c46] 46. A slot armor material as in claim 45, wherein the material is a profile extruded material.
- [c47] 47. A slot armor material as in claim 46, wherein the profile extruded material includes a first leg portion and a second leg portion disposed at an angle to the first leg portion, the second leg portion being shorter and thicker than the first leg portion.
- [c48] 48. A slot armor material as in claim 47, wherein the second leg portion includes (i) a connection portion integrally connected to the first leg portion, and (ii) a tip portion integrally connected to the connection portion, the tip portion having a

width which tapers as the tip portion extends away from the connection portion.

[c49] 49. A slot armor material as in claim 47, wherein the second leg portion includes (i) a first surface which extends perpendicularly to the first leg portion, and (ii) a second surface, opposite to the first surface, which extends at an angle less than perpendicular to the first leg portion.

[c50] 50. A slot armor material as in claim 47, wherein the second leg portion includes an internal skeleton structure.

[c51] 51. A profile extrusion system for profile extruding a material, the system comprising:
an extruder for melting the material;
a profile extrusion die operatively coupled to the extruder so that the die receives the material melted by the extruder, the die comprising:
a plate having a first slot and a second slot defined therein, the material passing through the first slot and the second slot;
a mandrel inserted into the second slot of the plate for controlling a flow rate of the material passing through the second slot; and
a land having a profile-shaped slot defined therein for providing a profile shape to the material that has passed through the first and second slots of the plate; and
a calibrator for cooling the material shaped by the land.

[c52] 52. A profile extrusion system as in claim 51 wherein the mandrel slows the flow rate of the material passing through the second slot so that the material passes through all portions of the profile-shaped slot of the land at a uniform flow rate.

[c53] 53. A profile extrusion system as in claim 51 wherein the profile-shaped slot of the land has a first slot portion and a second slot portion disposed at an angle to the first slot portion, the second slot portion being wider and shorter than the first slot portion; and
the first slot of the plate is aligned with the first slot portion of the land so that at least some of the material that has passed through the first slot passes through the first slot portion, and
the second slot of the plate is aligned with the second slot portion of the land so that at least some of the material that has passed through the second slot passes through the second slot portion.

[c54] 54. A profile extrusion system as in claim 53 wherein the mandrel slows the flow rate of the material passing through the second slot of the plate so that the material passes through the first and second slot portions at a uniform flow rate.